

APRIL 1975

No. 4



FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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NATIONAL OCEANIC AND
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APRIL 1975, No. 4



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PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. This is a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W . Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this publication approved by the Office of Management and Budget, August 20, 1973; this approval expires June 1976.

Submitted for publication - May 27, 1975

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1,2,3,4,5,6,7,10 and 15-day Supplement)

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Expendable bathythermograph and salinity observations are made by the mates and engineers of the Californian of Matson Navigation Co. The data are processed under supervision of D.R. McLain at the NMFS Pacific Environmental Group, Monterey, using computer facilities of the Fleet Numerical Weather Center. The project is partially supported by the National Science Foundation and the Office of Naval Research under Government NAonr-9-74.

Sea Surface Temperature and Environmental Conditions

R. EVANS AND F. MILLER

Eastern North Pacific

Sea surface temperatures changed little with respect to the norm from March to April in the eastern North-Pacific. Temperature anomalies were less than 3°F (1.65°C) in all areas in April while the maximum temperature changes from March to April were positive and less than 3.6°F (2°C). These positive changes were greatest in an area of heating north of Hawaii located between 30° and 45°N and 140° and 170°W . As a result of this heating, the areas of positive temperature anomaly evident in March north of Hawaii increased slightly in magnitude and expanded some 7° to the northward to about 42°N . The heating in this area was due to normal seasonal heating in conjunction with near normal wind speeds in the center of and to the west of the sub-tropical high (see following paragraph and Figure 2.) The waters between Hawaii and Baja California underwent a cooling trend in April. This is evidenced by an increase in the negative anomaly south of 25°N in this area and off the coast of central and Baja California. This cooling is a result of above normal wind speeds (see Figure 2.) and cloud cover in this area in April. Temperature anomaly patterns throughout the eastern North Pacific continued to be weak in April.

Barometric pressures continued to run higher than normal in eastern North Pacific by up to 6 millibars in April. This area of abnormally high pressure has expanded to include almost all of the eastern North Pacific except for an area northwest of Hawaii between 23° and 35°N where pressures were near the normal. The April pressure pattern closely resembles the long term mean in appearance with the overall higher pressures causing the April winds to run 1 to 3 knots above the mean in most areas. Because of the similarity of the April and mean pressure fields the resultant components of the April winds are little different from the mean except from the U. S. west coast out to 140°W between 40° and 50° north where the resultant wind has a stronger than normal southward component. This appears to be due to a stronger than normal east to west pressure gradient between the coast and the center of the sub-tropical high located near 37°N and 145°W .

Western North Pacific

In general, the surface temperatures in the western North Pacific remained near the long term mean in April. Deviations from the mean were $\leq 1^{\circ}\text{F}$ ($.55^{\circ}\text{C}$) in most areas. Exceptions to this occurred East of 170°E between 25° and 30°N where positive anomalies are a continuation of those depicted in Figure 5. A band of colder water has now appeared south of 22°N between 178°W and 154°E . The area of warmer water that existed southwest of Kyushu in March has cooled with respect to the mean, with the area of warm anomaly now confined to the coastal waters northeast of Taiwan. A band of small positive and negative temperature anomalies extends from the east coast of Honshu eastward to 180° between 40° and 45°N . This band of anomalies corresponds with the northern side of the warm Kuroshio current and is probably caused by advection of surface waters into and out of the northern half of the Kuroshio.

Eastern Tropical Pacific

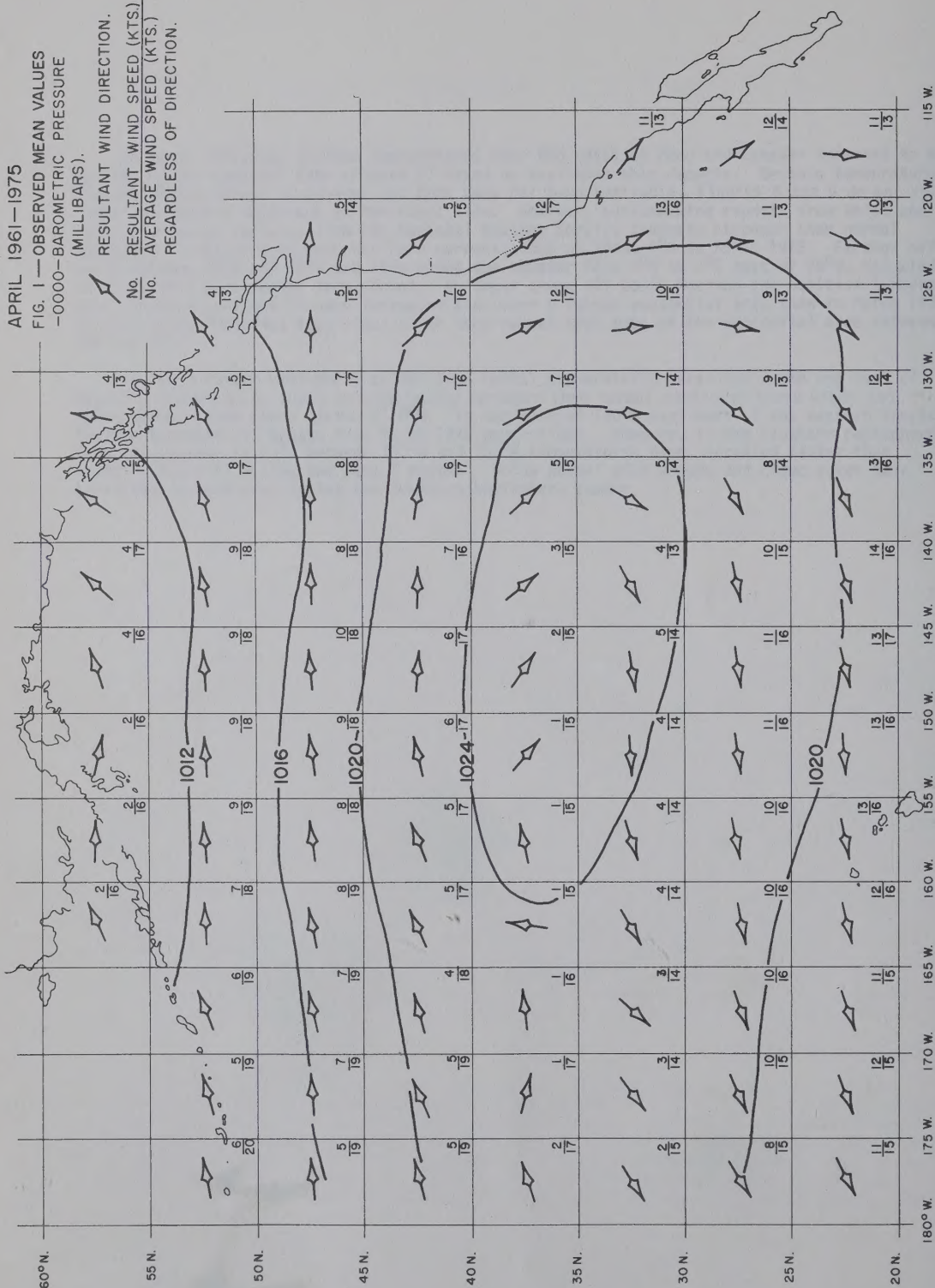
From March to April of each year sea surface temperatures in the Peru Current normally decrease as much as 3°F (1.7°C). Elsewhere in the southern hemisphere to 30°S the seasonal cooling is less than 1°F (0.5°C). In the equatorial area (10°N to 10°S) temperatures usually warm slightly west of 100°W and cool to the east. Seasonal temperature changes are small from March to April north of the equator except in a narrow band from 7°N to 12°N and east of 100°W . Here temperatures usually increase 2°F (1.1°C) as a result of clear skies and light winds accompanied by strong solar heating in the surface layers of the ocean.

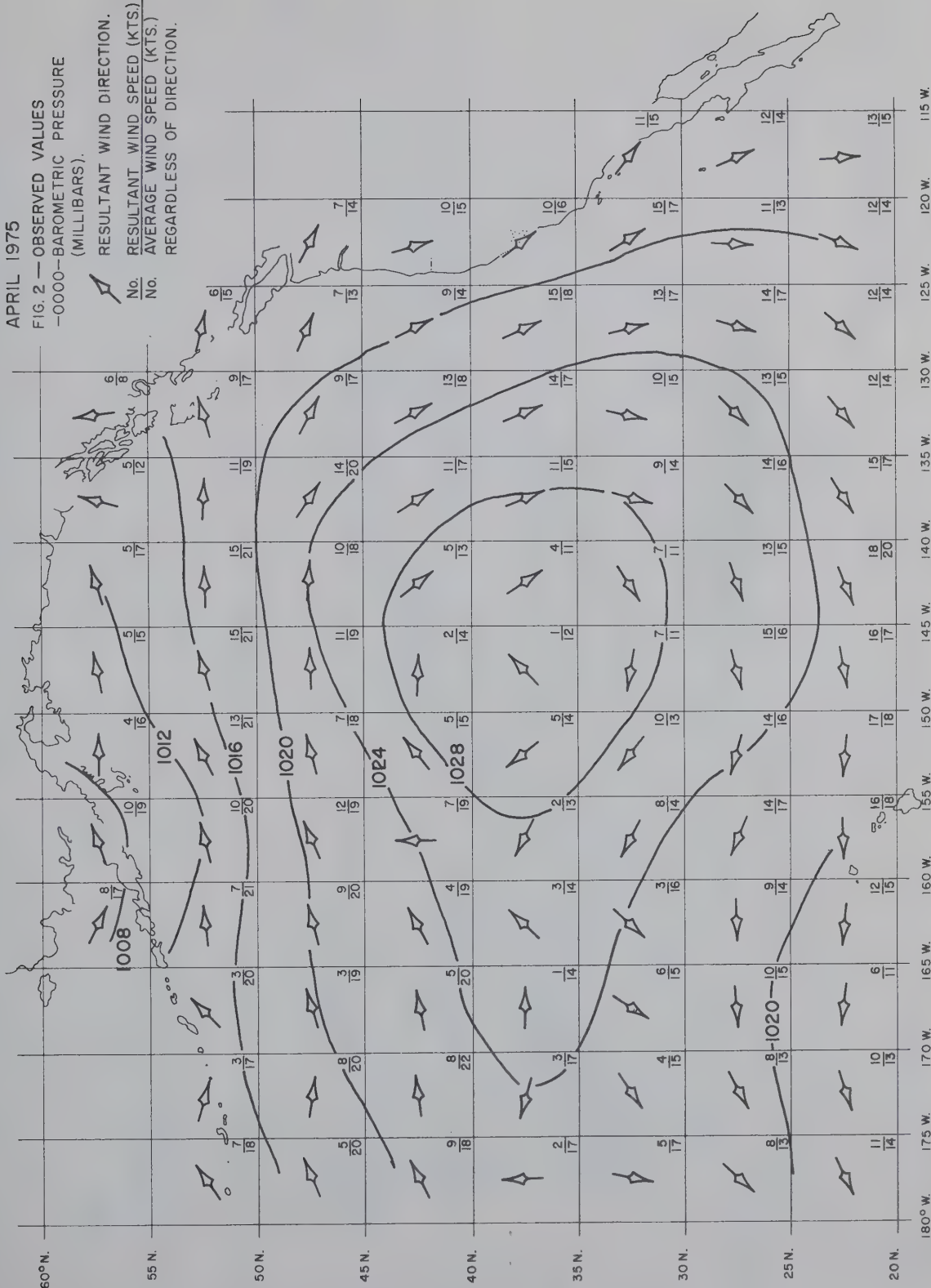
In April 1975, sea surface temperatures near the coast of Peru and Ecuador appeared to be cooling at the seasonal rate (Figure 9) based on available ship reports. Because temperatures from coastal stations in Ecuador and Peru have not been available, Figures 8 and 9 do not reflect temperature conditions at the coast line. However, surface wind reports from ships and surface pressure analyses from the National Weather Service indicate stronger than normal southeast trades inshore over the Peru current south of about 5°S in April 1975. Farther offshore between 83°W and 90°W and also along the equator from 3°N to 3°S east of 95°W, the winds and pressures were weaker than normal. In these areas off South America the positive temperature anomalies (Figure 9) have increased and cover a larger equatorial area than in March 1975. In April 1975 there was less cloud cover than normal over most of the equatorial area between 5°N and 5°S.

In the northern hemisphere colder than normal temperatures persisted south and west of Baja California as a result of continuing stronger than normal northeast trade winds and above normal cloud cover north of 10°N. To the west of 130°W over most of the eastern tropical Pacific temperature changes from March 1975 were slight. However, in the southern hemisphere from the equator to 20°S between 130°W and 150°W temperatures have increased faster than normal (Figure 9) during the past 3 months. Below normal wind speeds and cloud cover have persisted in this area during the southern hemisphere summer.

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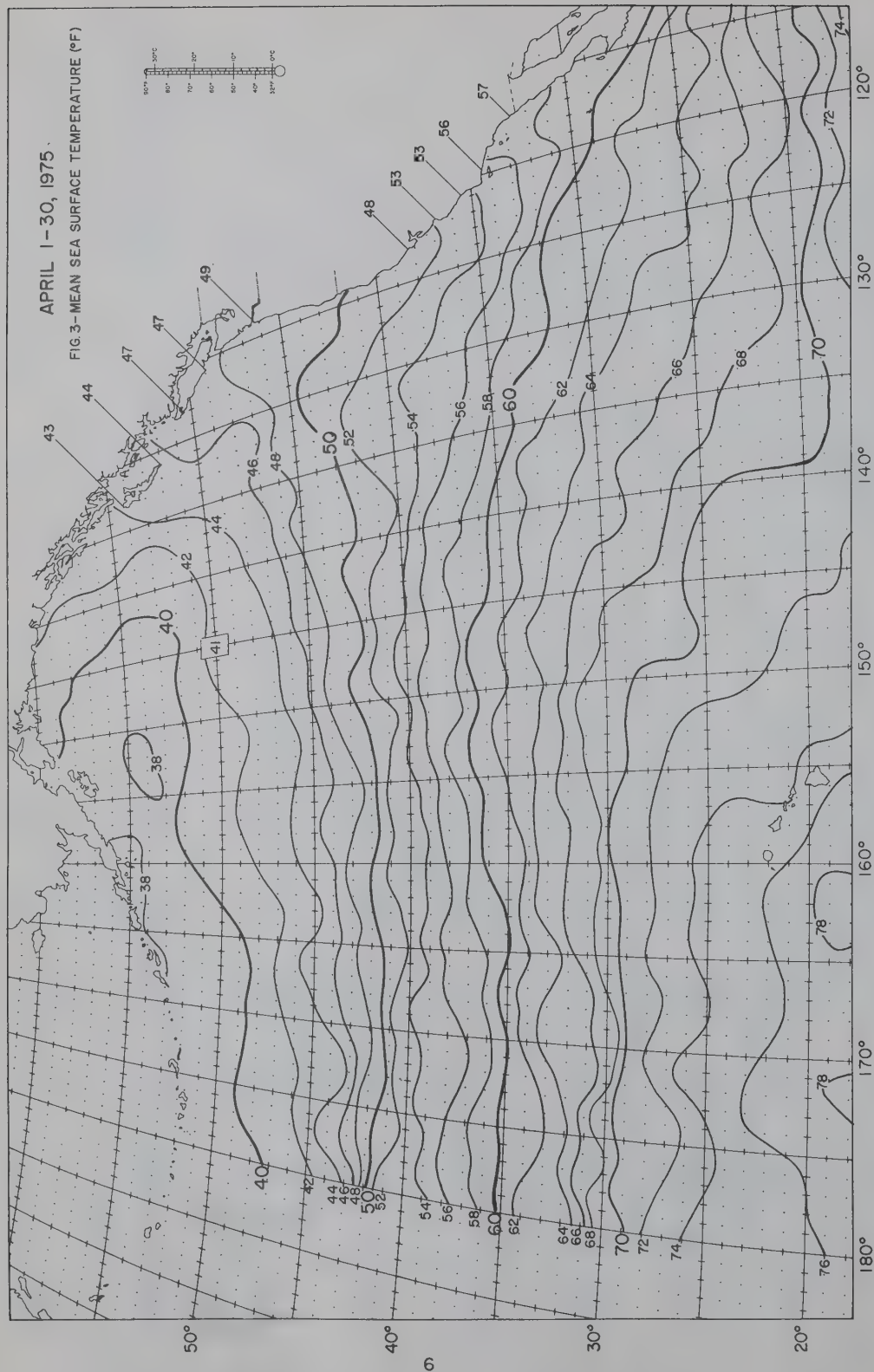
FIG. 1 - OBSERVED MEAN VALUES
-0000-BAROMETRIC PRESSURE
(MILLIBARS).
RESULTANT WIND DIRECTION.
RESULTANT WIND SPEED (KTS.)
AVERAGE WIND SPEED (KTS.)
REGARDLESS OF DIRECTION.

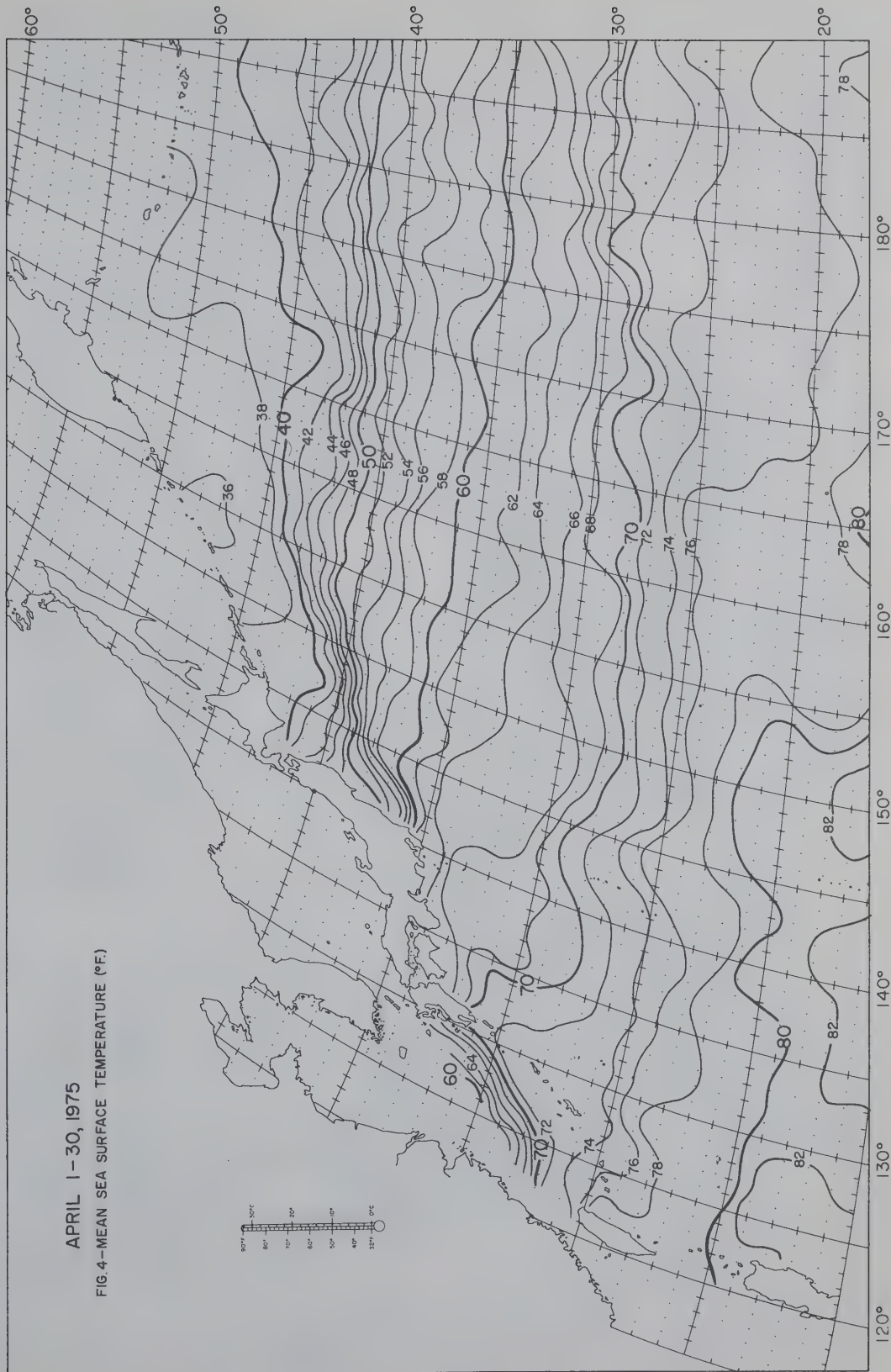




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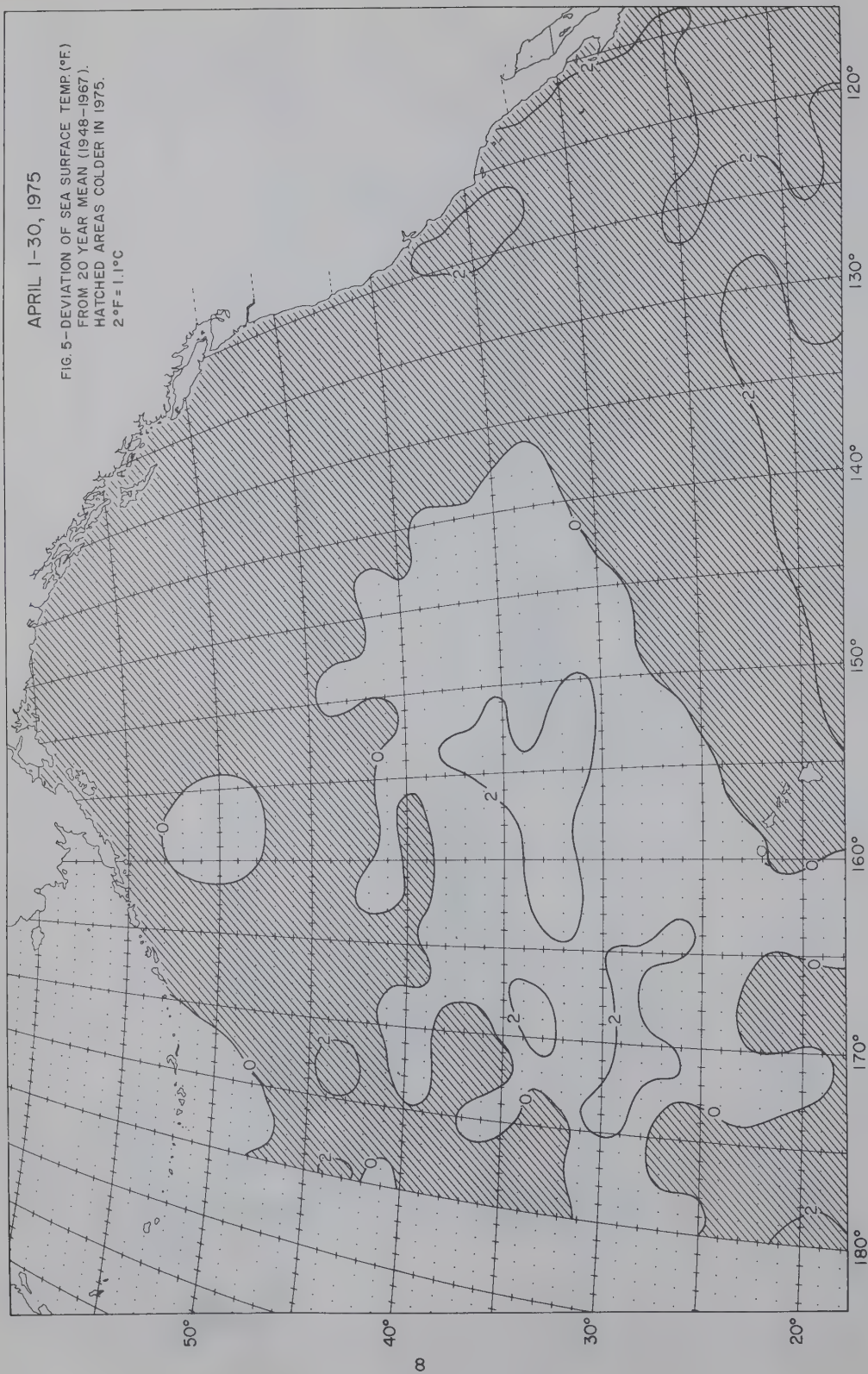
FIG. 3-MEAN SEA SURFACE TEMPERATURE (°F)

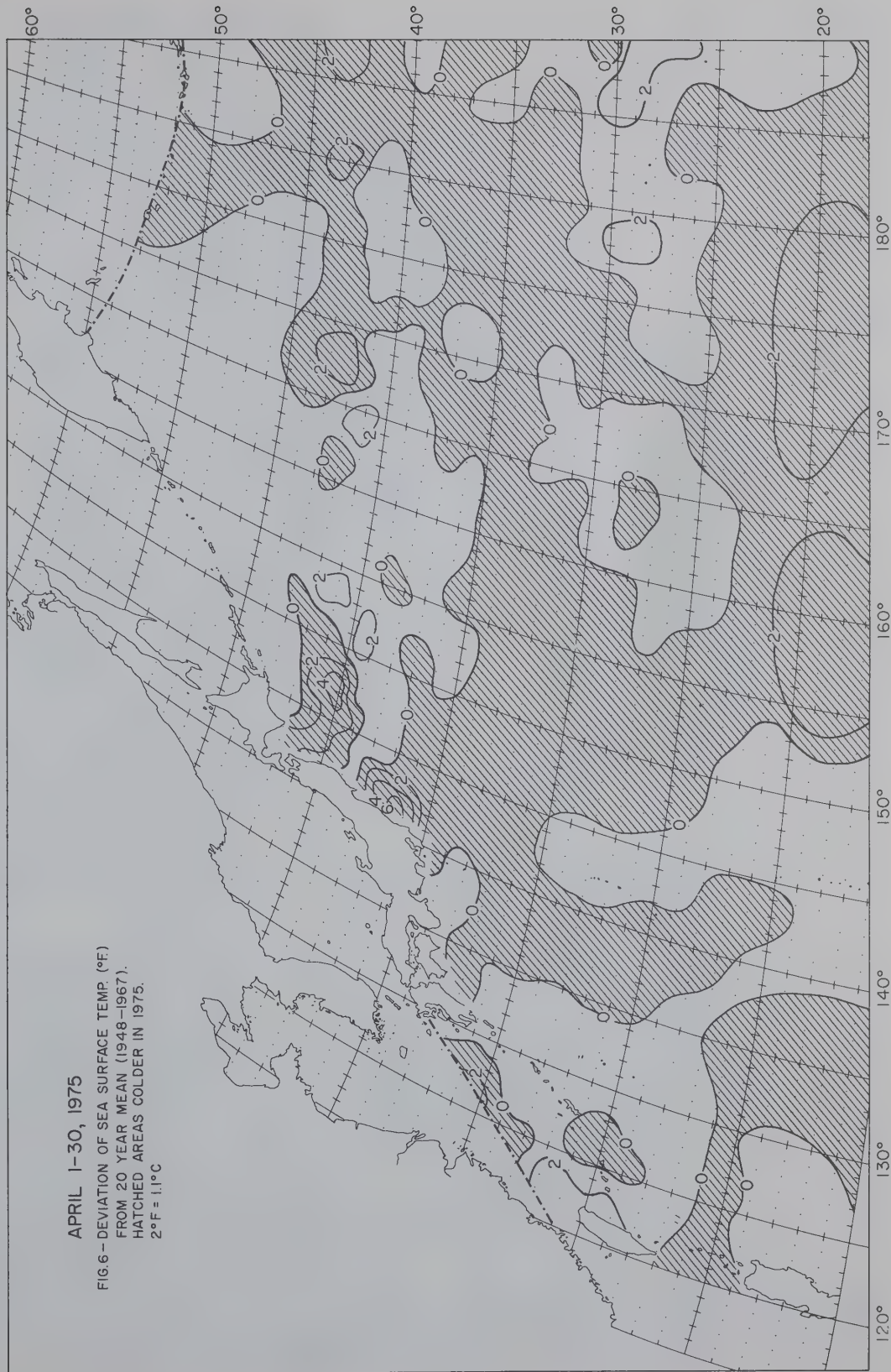




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FIG. 5-DEVIATION OF SEA SURFACE TEMP. (°F.)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1975.
2°F = 1.1°C



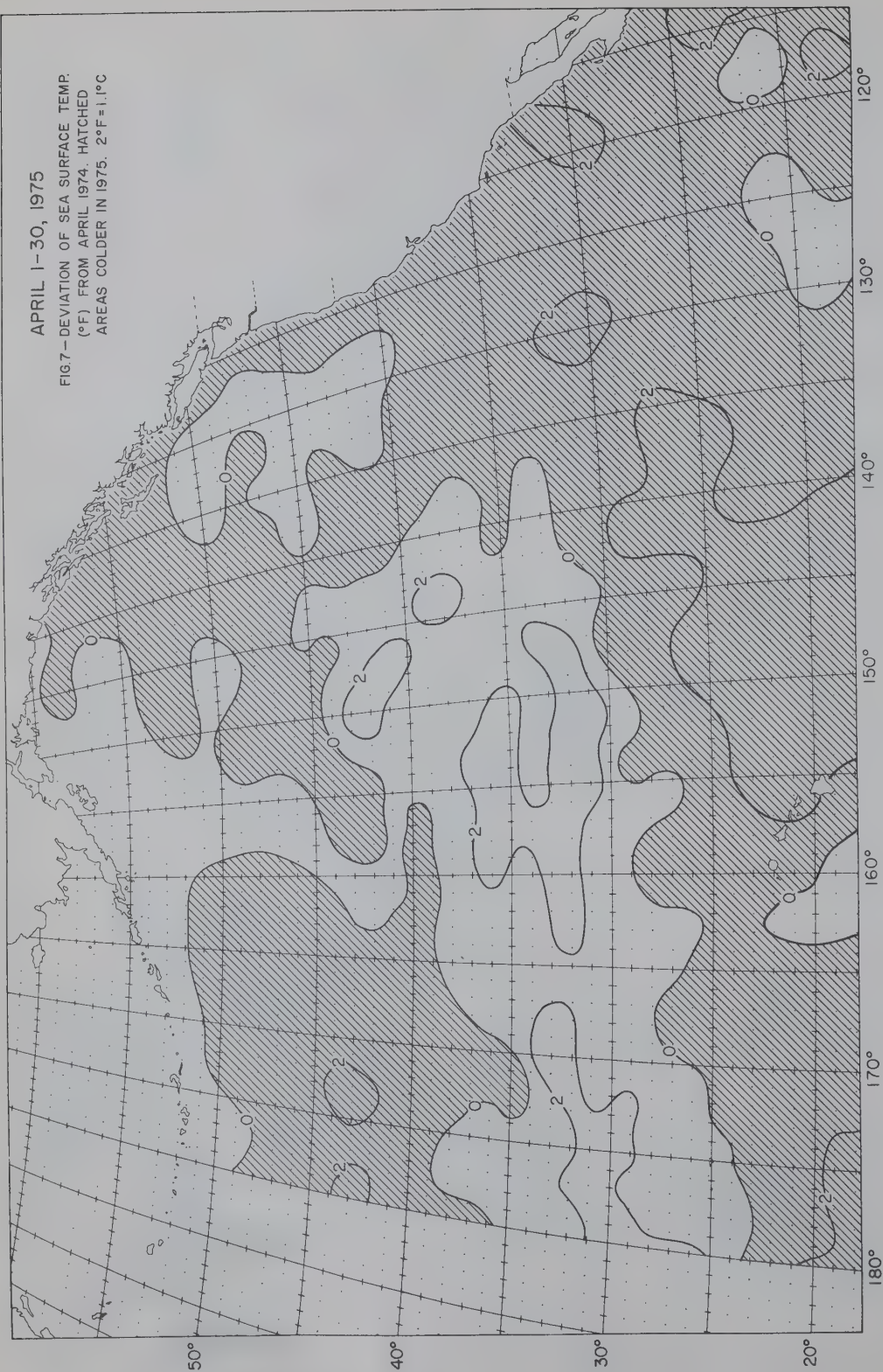


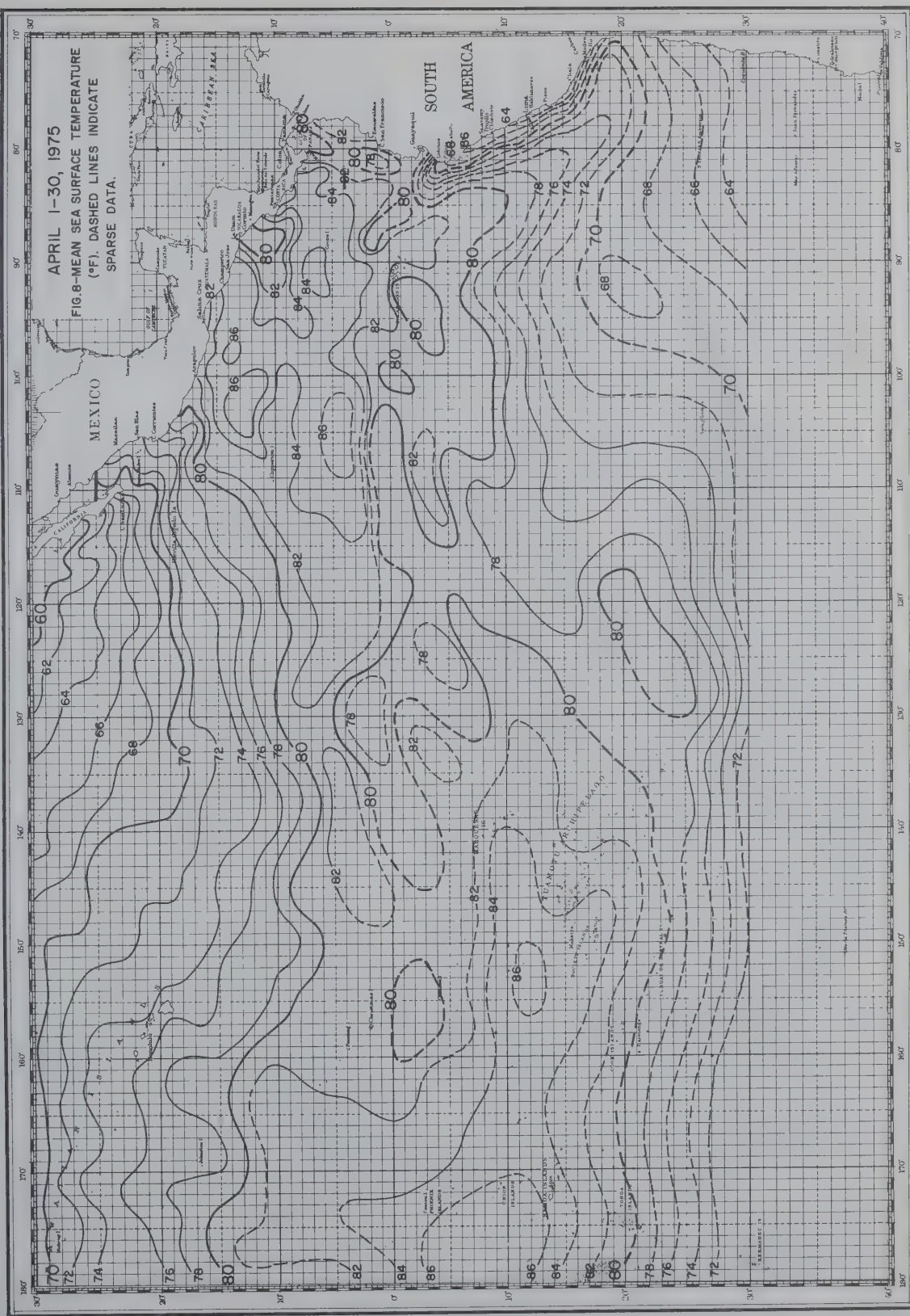
APRIL 1-30, 1975

FIG. 6 - DEVIATION OF SEA SURFACE TEMP. ($^{\circ}\text{F}$)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1975.
 $2^{\circ}\text{F} = 1.1^{\circ}\text{C}$

APRIL 1-30, 1975

FIG. 7-DEVIATION OF SEA SURFACE TEMP.
(°F) FROM APRIL 1974. HATCHED
AREAS COLDER IN 1975. $2^{\circ}\text{F} = 1.1^{\circ}\text{C}$





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FIG. 8-MEAN SEA SURFACE TEMPERATURE
(°F). DASHED LINES INDICATE
SPARSE DATA.

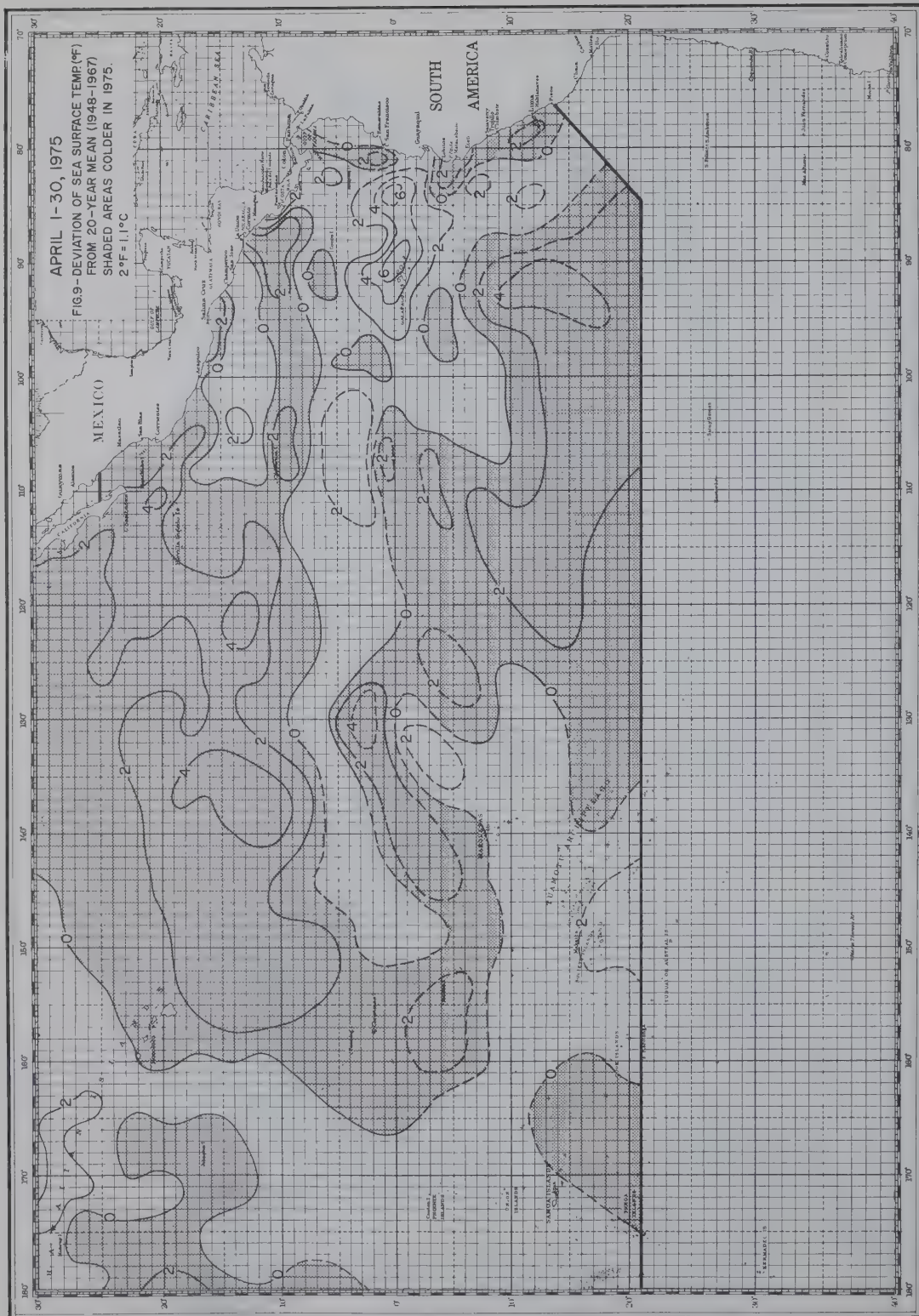
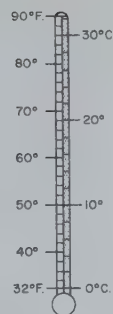
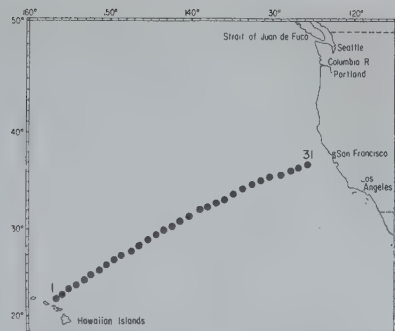


FIGURE 10

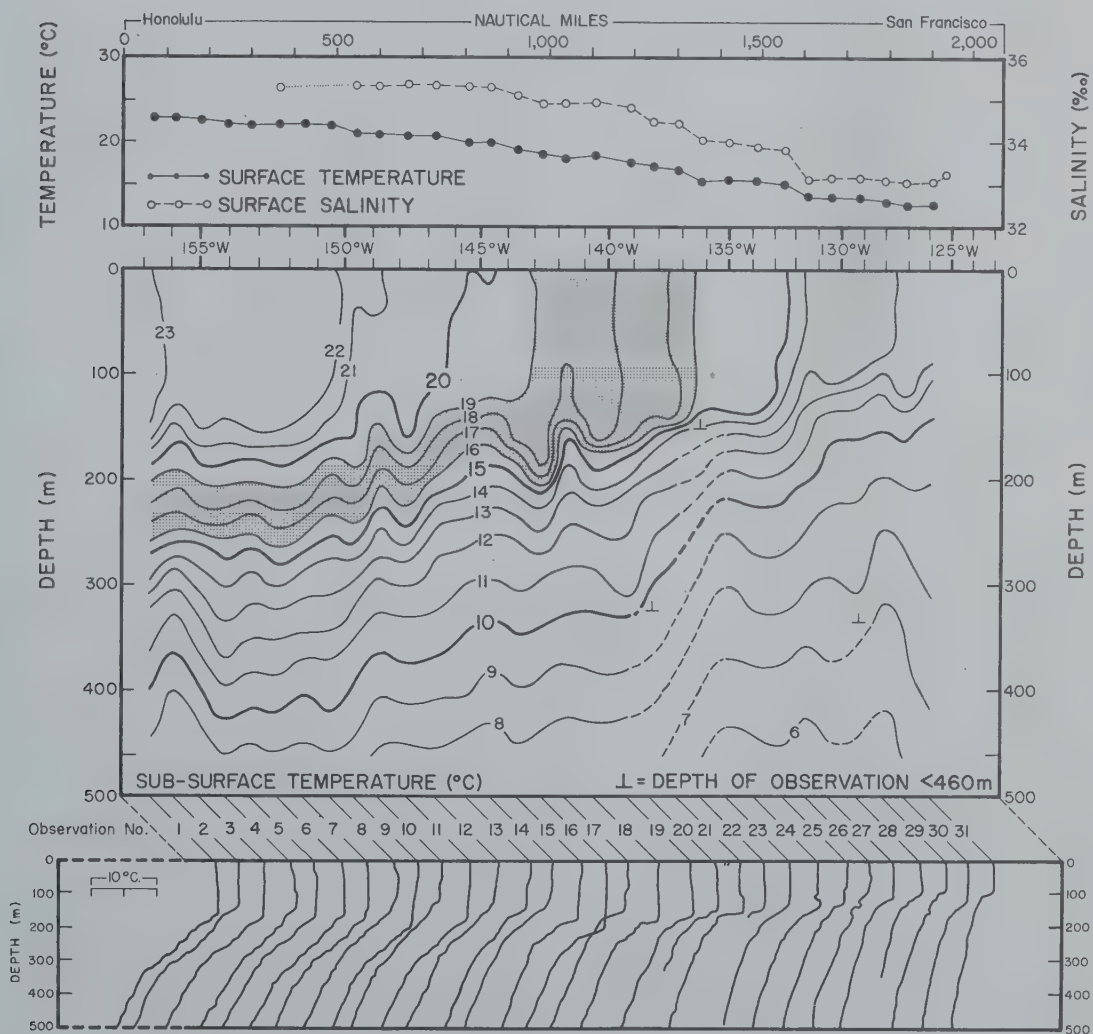


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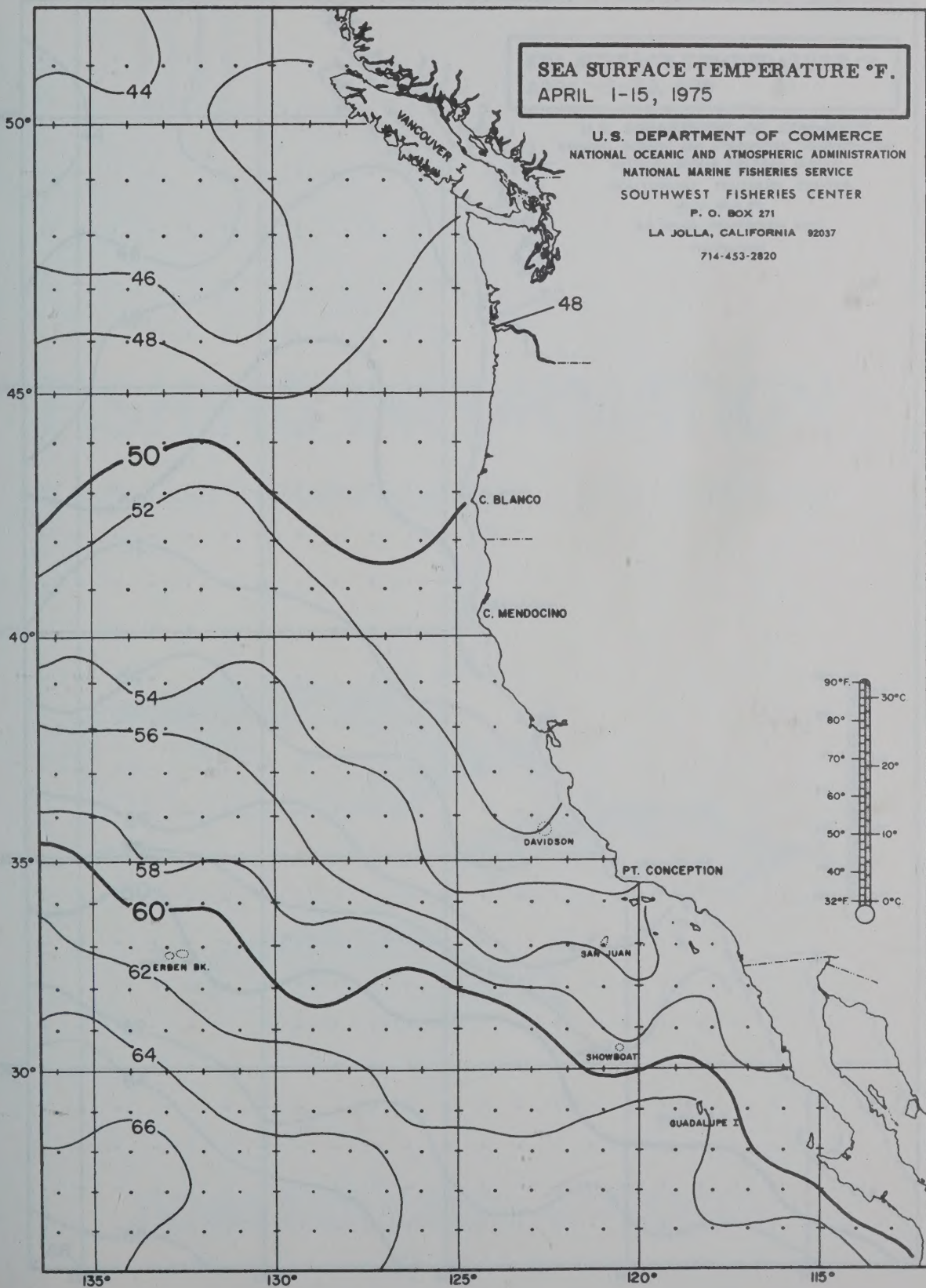


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SEA SURFACE TEMPERATURE °F.
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